

EXECUTIVE SUMMARY

Background

This study expands upon an earlier effort to plan a transit connection from BART's Dublin/Pleasanton station to Livermore. In order to identify a cost effective project, it expands upon the Phase 1 effort in the following ways:

- Expands the study area to include the **I-680 corridor** as far as Walnut Creek, capturing the high volume of Livermore-Amador Valley residents who work in places such as Bishop Ranch and downtown Walnut Creek.
- Expands the study area to include **Tracy**, capturing the high volume of Central Valley residents who work in the Tri-Valley, and intercepting commuters bound for the core BART system before they reach Altamont Pass.
- Analyzes lower cost transit technologies in greater detail, including two types of **Diesel Multiple Unit** (DMU) trains and a new form of **Bus Rapid Transit** (BRT).
- Provides a more sensitive **Travel Demand Analysis**
- Adds more detailed analysis of potential **Transit Oriented Development** (TOD).
- Focuses on corridors with the greatest **density** and potential ridership
- Attempts to capture four specific travel markets:
 1. Transfers to BART: Central Valley and Tri-Valley commuters who want to transfer to the core BART system
 2. Intra-Tri-Valley: local residents who commute to jobs in the Tri-Valley
 3. To Tri-Valley: Central Valley residents who commute to jobs in the Tri-Valley
 4. "Reverse Commuters": workers who use the core BART system to reach jobs in the Tri-Valley

Additional background information can be found in Chapter 1.

Alternatives

This study analyzes four transit alternatives that mix technologies and alignments in different ways. None of these alternatives is suggested as the “preferred alternative,” and the best option may well be a combination of elements from all four alternatives. Detailed maps and descriptions can be found in Chapter 2.



Light DMU is similar to Light Rail, but without the overhead wires.

Option 1 uses “Light” Diesel Multiple Unit technology following the former Southern Pacific Right of way from a Park & Ride lot in San Joaquin County through Tracy and over the Altamont Pass, through downtown Livermore and via the Iron Horse Trail right of way in Pleasanton to the Dublin/Pleasanton BART station. From there, it shares the Iron Horse Trail right of way to Bishop Ranch, then hugs the east edge of I-680 into downtown Walnut Creek and the Walnut Creek BART station. This Option includes 25 stations and is largely single track. In order to get through Hacienda Business Park, where the former SP right of way narrows, it provides a bored tunnel under Santa Rita and Las Positas, emerging into the Owens Drive median as a streetcar.

Option 2 differs from Option 1 only in that it avoids the use of the Iron Horse Trail. Instead, it runs through a redevelopment site in East Pleasanton, and along the north edge of I-580 into the Dublin/Pleasanton station. From there, it follows Dougherty Road and Bollinger Canyon Road through the Dougherty Valley developments. Option 2 also has 25 stations and operates on a single track. It includes a bored tunnel under the Canyon Lakes Golf Course into Bishop Ranch.

Option 3 is similar to Options 1 and 2, but it uses “Heavy” Diesel Multiple Unit technology and shares trackage with freight trains and ACE, allowing it to operate on a double track for much of its length. It follows Option 2’s route through Pleasanton and Option 1’s route through Dublin and San Ramon. Because “Heavy” DMUs do not operate well on streets, this alternative skirts downtown Walnut Creek along I-680 before ending at the Walnut Creek BART station. It will have 19 stations.

Option 4 is a hybrid of a traditional BART extension via the I-580 median to Greenville, plus two Bus Rapid Transit (BRT) services.

One route continues from the Greenville station via a reversible HOV lane on Altamont Pass and Grant Line roads into downtown Tracy. The other BRT line continues from the Dublin/Pleasanton station via an extended I-680 HOV lane to Bishop Ranch and Walnut Creek. There would be three stops in Bishop Ranch, accessed from two new direct ramps.

A summary of the options can be found below.

Figure ES-1
Key Statistics

	Option 1 Light DMU via Iron Horse Trail & I-680	Option 2 Light DMU via Dougherty Valley & I-680	Option 3 Heavy DMU via Iron Horse Trail & I-680	Option 4 I-580 BART Extension + Bus Rapid Transit
Route Miles	52	56	54	12 BART 46 BRT
Stations	25	25	19	2 BART 12 BRT
Frequency	15-20 min	15-20 min	15-20 min	15-20 min
Vehicle Fleet	32	34	31	22 buses 24 BART

Evaluation of Alternatives

Ridership Methodology

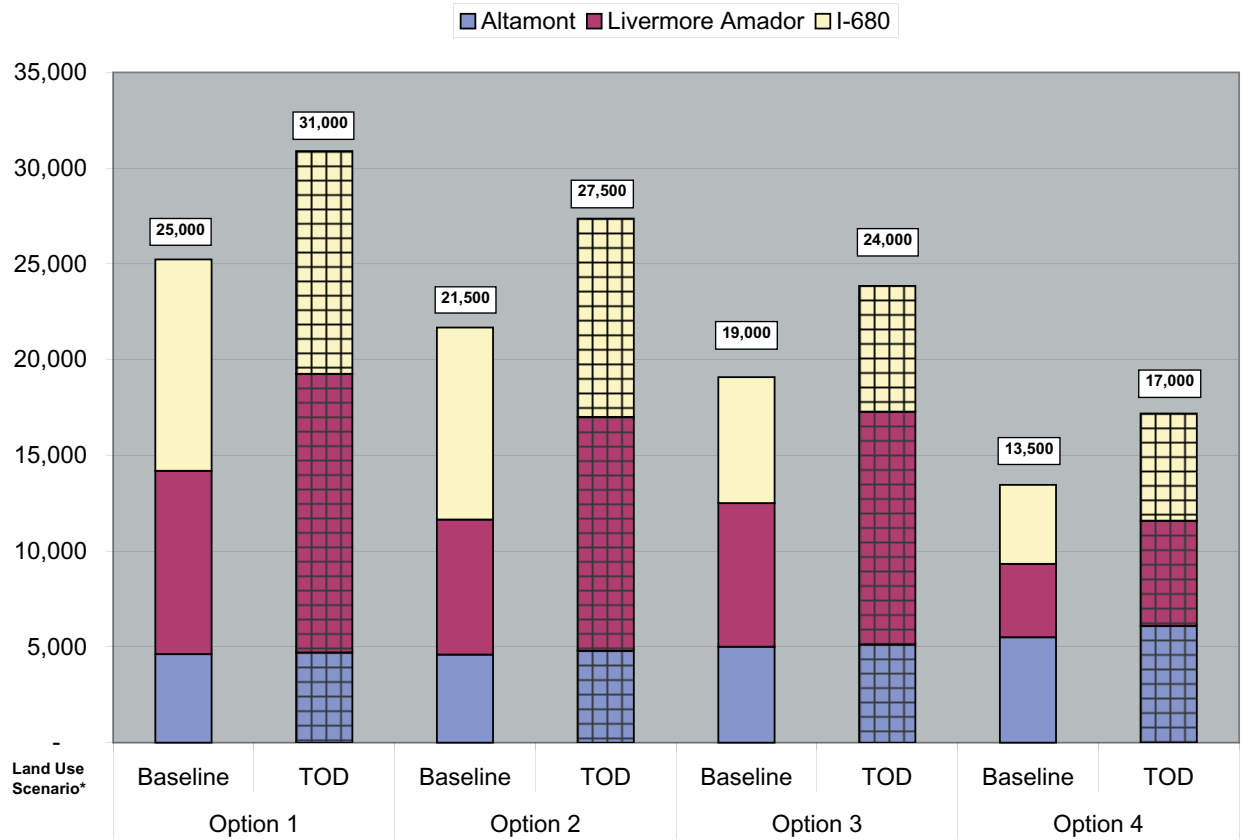
The Phase 2 study uses a new travel demand model to predict ridership for each of the alternatives. The model uses inputs from the Alameda County Congestion Management Agency model, and the Contra Costa County Transportation Authority Tri-Valley model. This model emphasizes detailed land use assumptions about each station area, and it predicts ridership based upon the characteristics of similar BART and Caltrain station areas elsewhere in the Bay Area. It starts with the land use assumptions from the Association of Bay Area Governments' *Projections* for 2020 as a baseline, but subtracts out North Livermore. It also includes an analysis of the effect of likely Transit Oriented Development in the study area. For more detail, see Chapter 3.

Ridership

Each of the options studied produce significantly more riders than those in Phase 1, largely because the additional stations and expanded study area successfully capture important intra-Tri-Valley, reverse-commute and Central-Valley-to-Tri-Valley trips. Option 1 produces significantly more riders as a result of its direct alignment straight through major job and population centers. Option 4's BART extension produces significantly fewer riders than the other alternatives between Dublin/Pleasanton and Livermore.

A summary table is shown on the opposite page, with more detail available in Chapter 3.

Figure ES-2
New Daily Riders in 2020

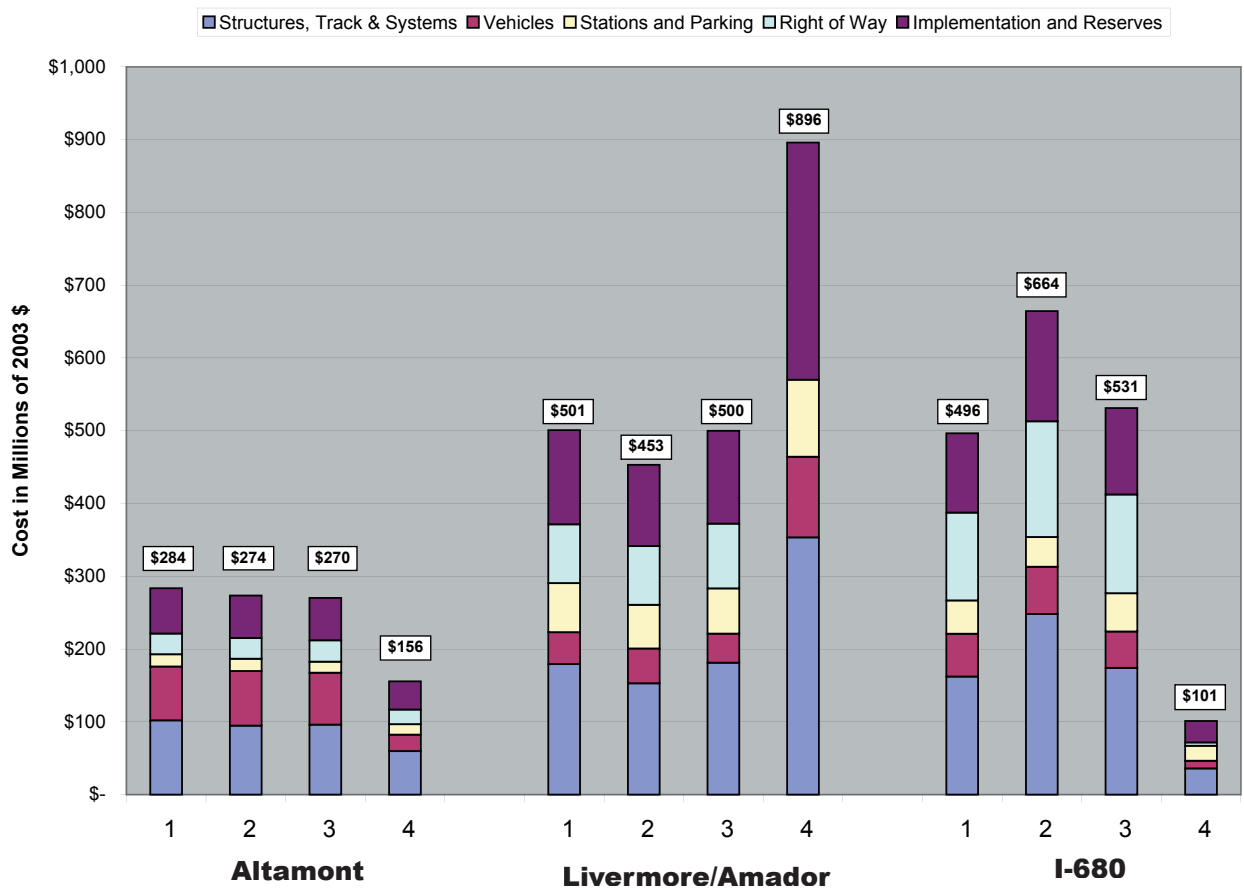


* "Baseline" = Association of Bay Area Governments' 2020 *Projections*, minus North Livermore. "TOD" = ABAG's 2020 *Projections*, plus extra infill at key destinations such as Bishop Ranch, Greenville and Hacienda.

Cost

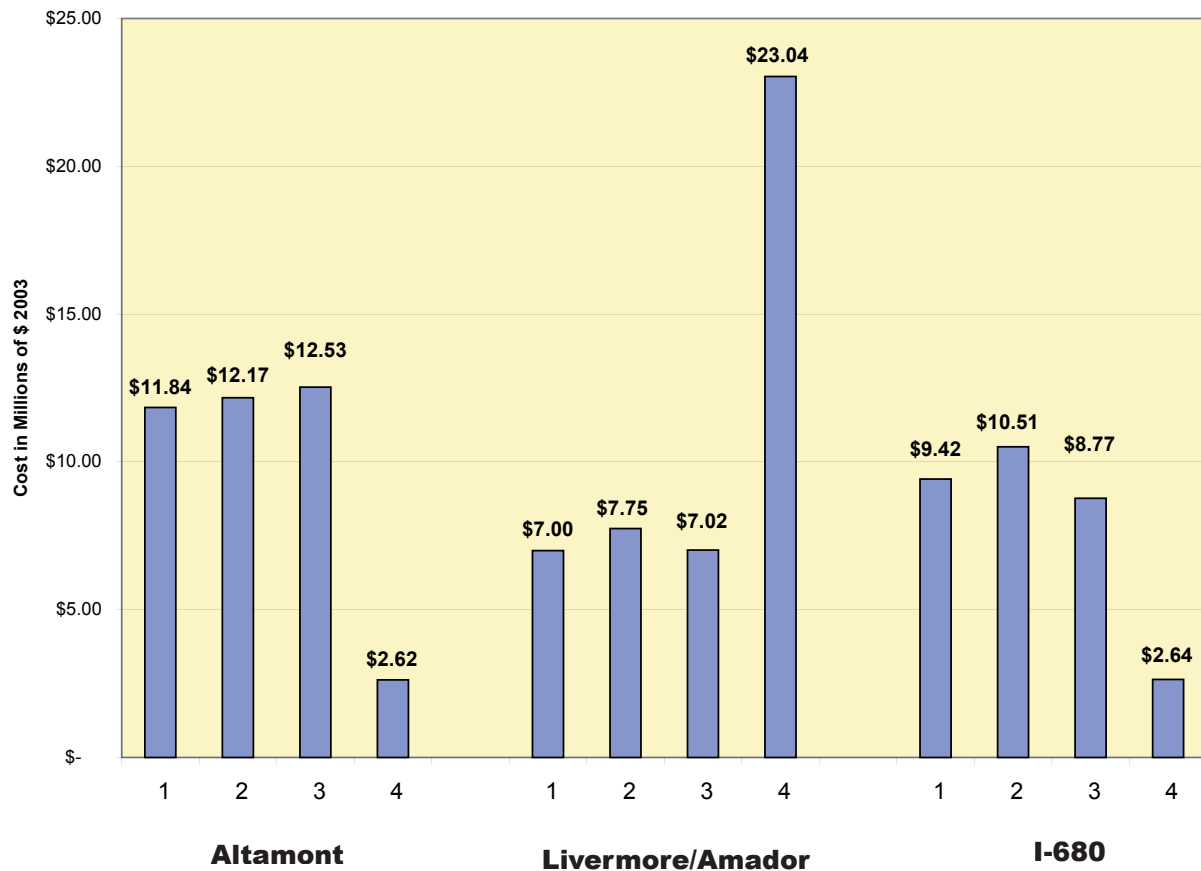
Both capital and operating costs for all alternatives are similar, with the exception that the Bus Rapid Transit components are significantly less expensive and the BART extension is significantly more expensive than other technologies in comparable segments. Total capital costs range from \$1.2 billion for Option 4 to \$1.4 billion for Option 2.

Figure ES-3
Capital Cost Summary



Total By Option (in billions)	
Option 1	\$1.3
Option 2	\$1.4
Option 3	\$1.3
Option 4	\$1.2

Figure ES-4
Annual Operating and Maintenance Costs



Total By Option (in millions)	
Option 1	\$28
Option 2	\$30
Option 3	\$28
Option 4	\$28

Evaluation Criteria

BART's System Expansion Criteria were used to evaluate all four alternatives, including:

- Transit Supportive Land Use and Access
- Cost Effectiveness
- Regional Network Connectivity
- System and Financial Capacity
- Partnerships

Details of all these categories can be found in Chapter 4. A key and important difference among the alternatives is in the Cost per New Rider category, where the Diesel Multiple Unit and Bus Rapid Transit options were shown to be highly competitive for regional and federal funding.

Additional evaluation measures are summarized on the next page.

Figure ES-5
Cost Per New Rider

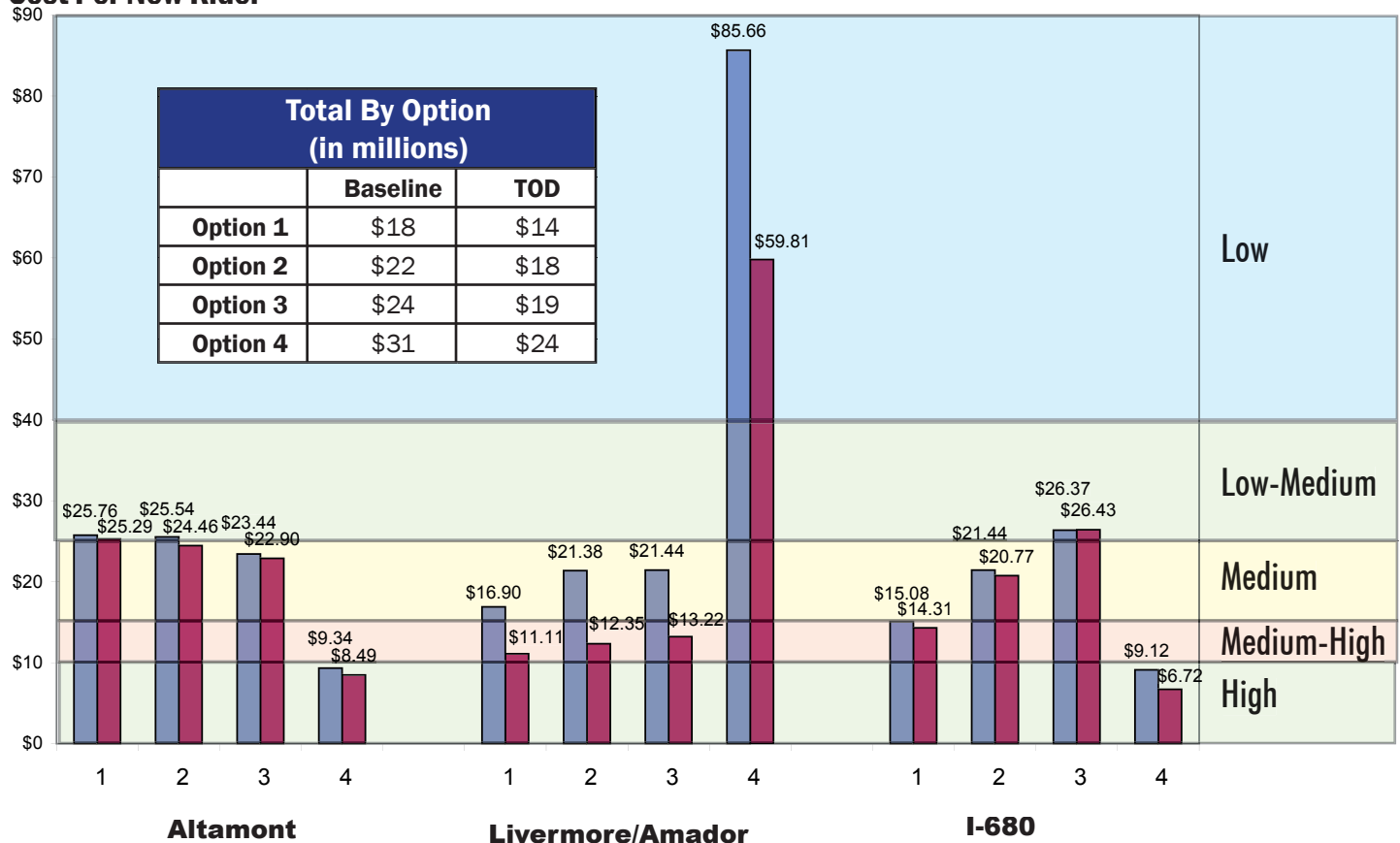


Figure ES-6
BART System Expansion Scorecard

Strategic Opportunity Assessment				
Criteria	Ratings			
	Option 1	Option 2	Option 3	Option 4
Transit Supportive Land Use/Development Plans				
Existing Land Use: Residential and/or Employment	L	L	L	L
Existing Intermodal Connections	LM	LM	LM	L
Land Use Plans and Policies	L	L	L	L
Ridership Development Plan*				
Ridership Threshold				
Station Context				
Cost Effectiveness				
Cost per New Rider – Base Case	M	M	M	LM
Cost per New Rider – TOD	MH	M	M	LM
Cost per Transportation System User Benefit**				
Regional Network Connectivity				
Regional Transportation Gap Closure	H	H	H	M
System and Financial Capacity				
Core System Improvements	L	L	L	M
Capital Finance Plan	tbd	tbd	tbd	tbd
Operating Finance Plan	H	H	M	L
Partnerships				
Community & Stakeholder Support	tbd	tbd	tbd	tbd
Staff Recommendation	TBD	TBD	TBD	TBD

* Ridership Development Plans to be developed in the next phase of study & evaluated at that time.

** Cost per Transportation System User Benefit measurements have not yet been developed by FTA. When this measure is defined, it will be applied to the project.

Legend

High	H
Medium-High	MH
Medium	M
Low-Medium	LM
Low	L

Next Steps

The Diesel Multiple Unit and Bus Rapid Transit alignments are all promising. If the project's Policy Advisory Committee and the BART Board recommend further consideration of these alternatives, the next step would be an Environmental Analysis and would include significant additional outreach in all of the affected study area communities. BART and local jurisdictions would also prepare a Ridership Development Plan focused on improved access and transit oriented development at future stations. In addition, BART would need to coordinate with Union Pacific and ACE to ensure that any BART project allows both freight and ACE passenger service to continue to be successful.